

# OHIDA BINTE AMIN

West Village H, Northeastern University, Boston, MA, USA

✉ amin.o@northeastern.edu <https://www.linkedin.com/in/ohi91/>

## EDUCATION

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### Northeastern University, Boston, MA, USA

Ph.D. in Computer Science / Personal Health Informatics

September 2022 - August 2027 (Expected)

### Khulna University of Engineering & Technology, Bangladesh

B.S.in Computer Science

March 2016 - March 2020

## EXPERIENCE

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### Khoury College of Computer Sciences, Northeastern University

Graduate Assistant (PhD Candidate) at The SATH Lab

September 2022 - Present

- Exploring how in-the-wild digital phenotypes capturing behavioral, lifestyle, or emotional patterns using longitudinal clustering, associate with how quickly students recover from stress during lab-based stressors
- Building daily stress prediction models by integrating behavioral rules from passive sensing data with physiological biomarkers derived from a pre-trained ML model from lab stressors
- Conducted a controlled digital phenotyping stress study across research and consumer-grade wearables where Garmin Forerunner 55s achieved highest performance, outperforming Empatica E4 by 6.2% in stress prediction ML models
- Examined how stress influences sleep quality via statistical analysis, revealing greater multiday sleep efficiency variability among high-stress individuals, addressing gaps in capturing different social determinants in sleep analysis
- Investigated social interaction patterns and depression severity using digital phenotyping data, applying constrained K-means clustering on personality traits and trajectory modeling of daily behavioral patterns

### Samsung Research America

Data Science & Machine Learning Intern at Samsung Design Innovation Center

May 2024 - August 2024

- Designed methods to aggregate and analyze unstructured response data for dyslexia support, using TextBlob for sentiment analysis and Term Frequency–Inverse Document Frequency (TF-IDF) vectorization for text feature extraction
- Built a feed-forward neural network MLP model to predict personalized support needed for Dyslexic individuals with smartphones for developing a prototype with Streamlit framework

### Baylor College of Medicine, Rice University

Research Fellow at The Fatima Al-Fihri Predoctoral Fellowship

April 2021 - December 2021

- Worked on automatic annotation of 3D genomic datasets using self-supervised deep learning approaches & conducted comparative study with different clustering techniques including K-means and DBSCAN on HiC features.

### Robi Axiata Limited, Dhaka, Bangladesh

Data Science & Machine Learning Engineer

July 2020 - February 2022

- Developed a complaint-classifier ML model using a neural network with ReLU and Softmax layers, handling training, validation, and deployment to resolve customer complaints with zero human intervention
- Built linear regression-based predictive model for suggesting suitable offers to the customers (like recharge, data pack, etc.) development, training, & validation

### Abelling, Dhaka, Bangladesh

Machine Learning Intern

June 2020 - July 2020

- Creating documentation for ML products and reviewing AI-assisted data labeling APIs & Abelling client data analysis by applying statistical analysis.

## IN-PROGRESS PAPERS & PATENT

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- U.S. Provisional Patent Application No. 63/665,243 Incorporating Personality Traits to Digitally Phenotype Mental Health Inventors: **O.B. Amin**, A. Sathyanarayana, V. Mishra NU Reference No.: INV-24121 Status: Filed, Pending
- **O.B. Amin**, V. Mishra, H. Saksono, R. Ghosal, and A. Sathyanarayana, “*Predicting Recovery Time from In-Lab Stressors using Digital Phenotyping*,” submitted to a conference
- A. Sathyanarayana, **O.B. Amin**, J. An, and J.-P. Onnela, “*Examining the use of consumer wearable devices and digital tools for stress measurement in college students: a systematic review of methods*,” submitted in JMIR mHealth and uHealth
- V. Singh, N. Miner, Y.R. Vutukoori, **O.B. Amin**, M. Chiu, C. Myers, C. Harteveld, R. Lohre, C. Bono, and A. Sathyanarayana, “*Automated Functional Assessment of Shoulder Pathologies Using Machine Learning and Extended Reality*,” submitted in npj Digital Medicine

## RECENT PUBLICATIONS & PRESENTATIONS

[Google Scholar Profile](#)

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- **O.B. Amin**, T.M. Tapera, R. Volpe, V. Mishra, and A. Sathyanarayana “*Extending Stress Detection Reproducibility to Consumer Wearable Sensors*,” in 2025 47th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) IEEE, 2025. [Paper Link]
- **O.B. Amin**, V. Mishra, and A. Sathyanarayana, “*The Impact of Stress and Sleep: Capturing Multi-day Patterns*,” in 2024 38th Annual Meeting of SLEEP, vol. 47, issue supplement1, 2024. [Abstract Link]
- **O.B. Amin**, V. Mishra, and A. Sathyanarayana, “*Investigating Social Interaction Patterns with Depression Severity across Different Personality Traits Using Digital Phenotyping*,” in 2023 11th International Conference on Affective Computing and Intelligent Interaction Workshops and Demos (ACIIW). IEEE, 2023. [Paper Link]

## SKILLS

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Language	Python, C, C++, R, Shell, Swift, SQL
Frameworks/Tools	TensorFlow, PyTorch, Keras, Scikit-learn, PySpark, Pandas, NumPy, Matplotlib, Oracle DBMS, MySQL, PyMongo, StatsModels, DEAP, Streamlit, Flask, Odoo, SkFuzzy, MATLAB Fuzzy Toolbox, KML, KML3D (R), OpenAI API
Domain	Machine Learning, Deep Learning, Digital Phenotyping, Digital Biomarkers, Mobile Sensing, Signal Processing, Data Science, Natural Language Processing, Human Computer Interaction
Wearable/Medical Devices	Empatica E4, Garmin, Polar Chest Straps, Biopac MP160 System

## AWARDS & ACHIEVEMENTS

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- SRS Diversity Membership Award 2023 – Sleep Research Society
- Start-Up Fund Recipient – Northeastern University, Khoury College of Computer Sciences
- Selected Research Fellow – The Fatima Al-Fihri Predoctoral Fellowship 2021

## RELEVANT COURSES

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Personal Health Interface Design and Development, Information Visualization Theory and Application, Mobile Application Development, AI for Human Computer Interaction, Understanding Users, Evaluating Health Technologies, Biostatistics in Public Health

## TEACHING

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CS 5200: Database Management Systems, Northeastern University  
Teaching Assistant, Summer 2025 & Fall 2025 (with Prof. Martin Schedlbauer)